REMARKS

The subject application comprises original claims 1-70. In the Office Action of June 1, 2005, claims 1-70 stand rejected under 35 U.S.C. § 112, first paragraph for failing to comply with the written description and enablement requirements. In addition, claims 1-70 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,734,318 to Curran et al. ("Curran") in view of WO 02/04120, as evidenced by counterpart U.S. Patent Application Publication No. 2003/0148878 by Vaughan et al. ("Vaughan").

Applicants respectfully traverse these rejections and submit the enclosed amendments and remarks to overcome the rejections. Claims 13, 24, 35, 36, 47, 54, 61,and 67 have been amended to correct minor typographical errors (claims 24, 35, 47, and 61) and to provide proper antecedent basis for "the at least one chemical product" (claims 13, 36, 54, and 67). Applicants submit that all amendments are supported by the specification, as originally filed.

Rejections under 35 U.S.C. § 112, First Paragraph

The Examiner has rejected claims 1-70 under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. The rejection is traversed for the following reasons.

As stated in the MPEP § 2163(I)(A), "[t]here is a strong presumption that an adequate written description of the claimed invention is present when the application is filed.... [T]he PTO has the initial burden of presenting evidence or reasons why persons skilled in the art would not recognize in the disclosure a description of the

invention defined by the claims." The MPEP further states that "[a]n applicant may show possession of an invention by disclosure of drawings or structural chemical formulas that are sufficiently detailed to show that applicant was in possession of the claimed invention as a whole." MPEP § 2163(II)(3)(a). "In claims involving chemical materials, generic formulae usually indicate with specificity what the generic claims encompass. One skilled in the art can distinguish such a formula from others and can identify many of the species that the claims encompass. Accordingly, such a formula is normally an adequate description of the claimed genus." *Regents of the University of California v. Eli Lilly*, 119 F.3d 1559, 1568 (Fed. Cir. 1997). "One does not look to the claims but to the specification to find out how to practice the claimed invention." *W.L. Gore & Assoc., Inc. v. Garlock, Inc.*, 721 F.2d 1450, 1558 (Fed. Cir. 1983).

The Office Action does not recite factual evidence or provide an explanation why one of skill in the art would fail to recognize that the inventors were in possession of the claimed invention at the time the application was filed. The claims recite a method for conducting a chemical reaction in a non-fluorous medium using a fluorous compound in the presence of a solid adsorbant containing a fluorous domain and at least one chemical reactant. Applicants respectfully submit that the specification provides sufficient teaching to one skilled in the art to show that the inventors were in possession of the claimed invention and to enable the artisan to practice the invention as claimed.

Applicants disclose at least two illustrative examples of conducting a chemical reaction as recited in the claims, demonstrating different fluorous temperature dependent solubilities ("FTDS") reagents and catalysts (i.e., $P((CH_2)_2(CF_2)_7CF_3)_3$ and

$ClRh[P(CH_2CH_2(CF_2)_5(CF_3)_3]_3)$, and different solid adsorbants (i.e., Teflon shavings, fluorous reverse phased silica gel, fluorous polymer, and molecular fluorocarbons). In addition, Applicants disclose design strategies for the FTDS catalysts and reagents (see paragraphs [0039], [0044], and [0050] as well as elsewhere in the specification); discuss how the method can be applied to known stoichiometric and catalytic reactions (which are typically carried out in non-homogeneous environments) so that they can be carried out in a homogeneous non-fluorous environment (paragraph [0041]); and list potential reagents and ligands for FTDS reagent or catalysts synthesis (paragraph [0046]).

Further, Applicants disclose the generic formulae $M_x\{L[(R)_n(Rf)_m]_y\}_z$ and $D[(R)_n(Rf)_m]_y$ for suitable FTDS reagents and catalyst along with specific examples of actual representative compounds, for example, $HOOC(CH_2)_2(CF_2)_7CF_3$, $P((CH_2)_2(CF_2)_7CF_3)_3$ and $ClRh[P(CH_2CH_2(CF_2)_5(CF_3)_3]_3$. (See paragraphs [0050] to [0055]). One skilled in the art could distinguish such a formula from others and identify many of the species that the claims encompass.

Applicants also note in the specification that one skilled in the art could use the teaching of the present disclosure along with structures of existing reagents and catalysts to develop counterpart FTDS reagents and catalysts. "[C]atalysts and reagents known to those skilled in the art to effect or participate in known reactions are potential 'parent' materials for making the fluorous phase compatible derivatives of the present invention." (Paragraph [0050]).

Applicants submit that the requirements of 35 U.S.C. § 112, first paragraph, have been satisfied by the disclosure and claims as filed. One skilled in the art, upon reading the disclosure, would understand that the inventors were in

possession of the invention as claimed and how to practice the invention as set forth in the claims. Consequently, Applicants respectfully request that the rejection of the claims under § 112, first paragraph, be withdrawn.

Rejections Under 35 U.S.C. § 103(a)

Claims 1-70 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Curran in view of Vaughan. Applicants respectfully traverse this rejection.

"To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations." MPEP § 2143.

Curran teaches a fluorous tri-phase system consisting of a substrate phase, a fluorous phase, and a product phase. Curran discloses a method of reacting a first compound to produce a second compound where the fluorous phase serves as a liquid barrier to prevent the two non-fluorous phases from mixing, but allow molecules that can transport, diffuse or migrate through the fluorous liquid phase to pass from the substrate phase to product phase, or vice versa. (Column 1, lines 43-45 and lines 61-65). The fluorous liquid phase(s) may "include any number of fluorous liquids as known in the art, including fluorous solvents." (Column 2, lines 1-3).

Vaughan teaches a catalyst system for fluorous biphasic catalysis processes. The Vaughan biphasic system comprises a two-phase mixture consisting of a perfluorcarbon ("PFC") liquid phase and a non-fluorinated solvent phase. (Paragraphs [0002] and [0003]). Vaughan combines the fluorous biphasic system with functionalized plastic beads, monodisperse SiO_2 or SiO_2 flakes and a catalyst to form the new catalyst system. (Paragraph [0014]). The Vaughan fluorous biphasic system requires "a vastly reduced volume of the fluorinated solvent." (Paragraph [0052]). However, Applicants note that Vaughan still requires a fluorinated solvent. In addition, Vaughan reports that "the amount of catalyst leaching in the non-fluorous phase is highly reduced." (Paragraph [0075]). Thus, Vaughan requires a fluorous solvent to solubilize the fluorous catalyst. The Vaughan biphasic catalyst system relies on the solubility of the catalyst in the PFC liquid (i.e., fluorinated solvent) to initiate reaction.

Applicants submit that the disclosure of Curran, taken alone or combined with the disclosure of Vaughan does not establish a *prima facie* case of obviousness for at least the reason that the references, either alone or combined, do not teach or suggest all aspects of the claims of the subject application.

The claims of the subject application provide methods for conducting a chemical reaction in a non-fluorous medium using a fluorous compound in the presence of a solid adsorbant containing a fluorous domain and at least one chemical reactant, the method comprising: contacting the fluorous compound and the at least one chemical reactant under conditions that form at least one product. (Claim 1). The methods of the subject application involve only non-fluorous solvents. In contrast, both Curran and Vaughan require a biphasic (or multiphasic) system involving at least one

fluorous solvent. All chemical reactions in the references occur, at least in part, within a fluorous medium.

In contrast, a stated advantage of the subject application is to "eliminate[] the need for liquid-liquid biphase systems." (See paragraph [0036] of subject application). "The present invention provides a significant advance over prior art in that a fluorous solvent is no longer needed to recover the fluorous catalyst, reagent, or transformed reagent." (Paragraph [0020]).

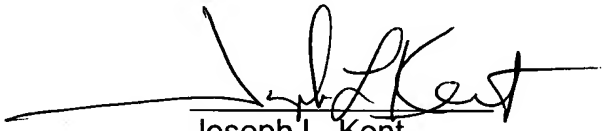
The cited references do not teach a method of conducting a reaction in a non-fluorous medium since the references require the fluorous reagent to be dissolved in a fluorous medium. Thus, the references do not teach or suggest all aspects of the claims of the subject application. In addition, there is no motivation or suggestion to modify the teaching of Curran and Vaughan to eliminate the fluorous solvent, as in the subject application, since both references require the fluorous solvent to create the biphasic (or multiphasic) system. Therefore, a *prima facie* case of obviousness has not been established. Applicants respectfully request that the rejection of claims 1-70 over Curran in view of Vaughan be withdrawn and the claims of the subject application be reconsidered.

CONCLUSION

Applicants submit that claims 1-70 of the subject application recite a fully described, enabled, and non-obvious method for conducting a chemical reaction in a non-fluorous medium using a fluorous compound in the presence of a solid adsorbant. In view of the remarks presented above, Applicants respectfully submit that the subject application is in condition for allowance. Accordingly, reconsideration of the rejections and allowance of claims 1-70 at an early date are earnestly solicited.

If the undersigned can be of assistance to the Examiner in addressing issues to advance the application to allowance, please contact the undersigned at the number set forth below.

Respectfully submitted,



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